

## **Claims**

**1. In a nanochannel substance in which an oxide layer contains a surfactant micelle, a nanochannel structure containing a functional molecule, characterized in that, a functional molecule is contained in the nanochannel.**

**2. The nanochannel structure containing a functional molecule according to claim 1, wherein the oxide layer mainly comprises silicon oxide.**

**3. The nanochannel structure containing a functional molecule according to claim 1, wherein the functional molecule is a chelate molecule.**

**4. The nanochannel structure containing a functional molecule according to claim 1, wherein the nanochannel substance is subjected to a treatment of making it hydrophobic.**

**5. The nanochannel structure containing a functional molecule according to claim 4, wherein the nanochannel substance contains an agent for making hydrophobic.**

**6. The nanochannel structure containing a functional molecule according to claim 5, wherein the nanochannel substance in which the oxide layer mainly comprises silicon oxide contains a silane coupling agent.**

**7. A nanochannel thin film containing a functional molecule which is characterized in that any of the nanochannel structures mentioned in claims 1 to 6 is arranged in a form of thin film on a solid substrate.**

**8. The nanochannel thin film containing a functional molecule according to claim 7, wherein the nanochannel is sedimented in many layers on a solid substrate in a three-dimensional manner.**

**9. A method for the manufacture of a nanochannel structure containing a**

functional molecule, characterized in that, a nanochannel substance where an oxide layer contains a surfactant micelle is formed from an acidic aqueous solution of alcohol containing a surfactant and an alkoxide compound which is able to form an oxide and then a functional molecule is impregnated in the nanochannel substance

10. The method for the manufacture of a nanochannel structure containing a functional molecule according to claim 9, wherein a hydrophobically treating agent is added to the acidic aqueous solution of alcohol.

11. The method for the manufacture of a nanochannel structure containing a functional molecule according to claim 10, wherein heating or drying is conducted on a solid substrate to form a nanochannel substance on its surface and then a functional molecule is impregnated in the nanochannel substance.